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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/619,632 | 07/16/2003 | Takeshi Sano | 240111US0 | 7462 |
| 22850 | 7590 | 12/13/2006 | | |
| C. IRVIN MCCLELLAND OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | | |
| EXAMINER LAM, CATHY FONG FONG | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1775 | | | | |

DATE MAILED: 12/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/619,632

Applicant(s)

SANO ET AL.

Examiner

Cathy Lam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 26-37 is/are pending in the application.
- 4a) Of the above claim(s) 31-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 26-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4-24-06, 8-16-06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

In view of the amendment and remarks filed on October 03, 2006, the pending claims continue to be unpatentable as following:

Election/Restrictions

1. This application contains newly added method claims 31-37 drawn to an invention nonelected with traverse. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

In the case where the product claims are allowable, the patent office will rejoin the method claims, providing the method claims are fully commensurate in scope of the product claims.

Claim Rejections - 35 USC § 112

2. Claims 1, 26 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is vague and indefinite as to whether the claimed aspect ratio and the diameter, are referring to the filler with the metallic surface layer or without the metallic surface layer.

Claims 26 and 30 are indefinite, as to whether the aspect ratio is referring to the filler with the metallic surface layer or without the metallic surface layer? Clarification is required.

Claim Rejections - 35 USC § 103

1. Claims 1, 26- 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al (US 4568592) or Chheang et al (US 6884833) or Hanrahan (US 5738936) in view of Kawaguchi et al (US 4701279).

Kawaguchi discloses an electroconductive film adhesive comprised of a polymeric insulative material and electroconductive fibrils.

The electroconductive fibrils are dispersed in the polymeric insulative material (col 2 L 15-20).

The polymeric insulative material can be an elastic material such as silicone resins (col 3 L 12-16). The electroconductive fibrils are wires and whiskers of metal such as copper, carbonized organic fibers, or metal plated glass fibers (col 3 L 40-51).

Each of the electroconductive fibrils having a length of $< 300\text{ }\mu\text{m}$ (or $< 200\text{ }\mu\text{m}$, or more preferably $15\text{-}60\text{ }\mu\text{m}$), and the fibrils have a diameter ranges from 5 to $100\text{ }\mu\text{m}$. The aspect ratio is at least 3.

Chheang discloses an anisotropic electrically conductive adhesive composition comprised of a polymeric adhesive component and an electrically conductive material (col 5 L 14-20).

The polymeric adhesive component includes an elastic/rubber material such as styrene-ethylene-butadiene-styrene block copolymers or polyurethane, etc. and a thermoplastic such as silicone resin and photocurable resins (col 6 L 1-8 & L 20-22).

The electrically conductive material is a filler material which may be a metal coated core material such can be a polymer, ceramic or glass, etc. (col 9 L 38-43).

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The metal coating can be silver, copper, nickel or gold, etc. (col 9 L 46-51). The electrically conductive filler can be characterized in various geometries such as oblong, acicular, flake, etc. (col 10 L 35-38).

Chheang's adhesive composition has a hydrophobic character, that is it has a very low rate of moisture intake (col 7 L 36-39 & col 6 L 34-40). Since Chheang's adhesive composition may include photocurable resins, inherently it is a UV curable material (col 6 L 22).

Hanrahan discloses a thermally conductive composite comprised of a PTFE matrix, an elastomeric material and conductive particles.

The elastomeric material which can be silicone or polyurethane, is imbibed into the PTFE matrix (col 3 L 62-65).

Thermally conductive particles such as Cu, Ni, Ag, etc. in the form of metal fiber, metal coated fiber or metal flakes, etc. are embedded within the PTFE/elastomer matrix (col 3 L 52-60).

Since Hanrahan teaches the same silicone resin in the composite, inherently Hanrahan's thermally conductive composite is UV curable and has the humidity-curing property.

Kawaguchi teaches an anisotropic electro-conductive adhesive comprised of a thermoplastic insulating adhesive and conductive particles.

The thermoplastic insulating adhesive comprised of rubber or thermoplastic elastomeric material (col 2 L 33-37). The electrically conductive particles are metal

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particles such as gold, silver, nickel, etc. and can take the shape of a fibrous or whisker form (col 4 L 14-22).

The electrically conductive particles are dispersed into the thermoplastic insulating adhesive (col 4 L 11-14).

Kawaguchi also teaches that it is conventional that the thermoplastic insulating adhesive includes heat curable resins such as silicone resins (col 1 L 20-24).

All four prior art reference teach an electroconductive adhesive that contains a conductive fiber, that is either conductive metal coated fiber (as in Chheang & Hanrahan) or a conductive fiber (as in Kawaguchi) dispersed in an elastic/silicone resin material. The examiner is taking the position that the prior art conductive fibers are equivalent to the claimed acicular conductive filler.

The prior art do not teach the aspect ratio and the diameter of the fiber strands (or the acicular particle). However, in view of the prior art teachings, one skill in the art would fabricate a finer conductive fiber or filler, because it would better blend in with the resin matrix and would give the product better anisotropic properties.

Regarding to the silicone resin being used as the elastic material in the resin composition, unless applicant can show that the claimed silicone resin is in some way different from the prior art silicone resins, i.e. chemically different, the examiner is taking the position that the prior art silicone resins are obvious over the present invention.

Response to Arguments

Applicant's arguments and Declaration filed on October 03, 2006 have been fully considered but they are not persuasive.

Conclusion

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Cathy Lam
Primary Examiner
Art Unit 1775

cfl
December 11, 2006